

good ideas but is disappointing because exceedingly ill expressed. However, this essay may well be read for its treatment of the multiple action of genes: in assessing the "value" to a species of a particular gene, it is necessary to consider, not only its "primary" effect (that is, its most noticeable one) but also its other effects; further, one must bear in mind interactions with the rest of the gene-complex. These important principles are illustrated by a number of examples, not all from studies of behaviour.

On the second theme, the evolution of behaviour, there is much more to be said. Two neurological chapters, by K. Pribam and H. Bullock respectively, give up-to-date and stimulating glimpses of a difficult and quickly changing subject. Among the rest, there is a very well argued account, by S. L. Washburn and Virginia Avis, of the evolution of human behaviour. L. Z. Freedman and Anne Roe write on human behaviour against a background compounded of Darwin and Freud. And Margaret Mead contributes a rather turgid comment on "cultural determinants" of behaviour. Social behaviour in animals generally (W. R. Thompson) and the social insects (A. E. Emerson) are also discussed.

In sum, this book can be recommended to readers with a considerable diversity of interests, both humanistic and formally scientific.

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FERTILITY

Milbank Memorial Fund. *Thirty Years of Research in Human Fertility: Retrospect and Prospect*. New York, 1959. Milbank Memorial Fund. Pp. 157. Price \$1.00.

IN 1958 THE Milbank Memorial Fund celebrated its thirtieth anniversary. The title of its annual conference, therefore, contained a reference to this significant fact, which is a cause for much congratulation. To mark the occasion, Mr. J. Hajnal was invited from England to read a paper on the Trend of the Study of Fertility and Reproduction over the period. It is characteristic of the Fund, however, that most of the nine papers printed in this volume are concerned with current developments and prospects for the future; five are based on current statistical studies and provide

some new figures, and one refers to needs for new official data.

While he disclaims any attempt at completeness, Mr. Hajnal has summarized the developments of the period very effectively. By giving the name of each author who was the first to point out some new idea, together with the page reference of the book or article in which this was done, he betrays an exhaustive knowledge of the subject. Of particular interest to eugenicists is the reference to an attempt by Galton to measure reproductivity in so early a year as 1873; it is yet another example of his original genius. To round off a most interesting contribution. Mr. Hajnal makes some suggestions for future research that seem well worth following up.

Mr. Norman Ryder has contributed an appraisal of fertility trends in the United States in which he seeks a mathematical connection between a measure of general fertility at a given point of time and a measure of the fertility of the particular cohort which at that time was at its average fertile age. The connecting links are the mean and standard deviation of the fertility age-distribution. The formula enables Mr. Ryder to analyse the trend of fertility for first births from cohort to cohort between the effects of (a) the secular trend and (b) changes in the mother's age on first bearing a child.

The needs for new census and registration data on fertility in the United States and the prospects for obtaining them are discussed in a short paper by Messrs. Grabill and Schachter. The most desirable form of record would undoubtedly be one of the complete marriage and fertility history of each adult. The 1960 census will not provide this, but a question on children ever borne will be asked of 25 per cent of married women.

In 1955, a sample of women aged 18-39 in the United States was interviewed in order to obtain data for the "Growth of American Families Study". An article by Mr. Ronald Freedman gives some preliminary results in relation to fecundity and family planning. He divides married couples into the five classes of: definitely sterile; probably sterile; semiferund; indeterminate; fecund. He also discusses family planning and the proportion of accidental preg-

nancies. Mr. Arthur Campbell contributes some early information derived from the same inquiry, this time on "socio-economic differences". Six aspects are discussed, namely religion, education, income, husband's occupation, wife's occupation and place of residence. The direction of the differences is indicated but there are not many details of their magnitude. Fuller particulars of the inquiry have been published in the book *Family Planning, Sterility and Population Growth*, by Freedman, Whelpton and Campbell.*

Three articles are concerned in some degree with another recent sample inquiry in the United States—the "Study of the Future Fertility of Two-child Families"—which is still current and has already received some attention in the pages of the REVIEW. Mr. Robert Potter refers to contraceptive practice and birth intervals; Mr. Charles Westoff discusses religion and fertility; and Mr. Philip Sagi makes a component analysis of birth intervals. The first of these articles is concerned with rates of "failure" among users of contraceptives and shows how unwanted births vary according to duration of marriage, order of birth and religion of the married couple. Some difficulties in the statistical analysis are described. The second paper investigates the association of fertility not only with the simple statement of "religion" but with such matters as frequency of church attendance, religious education and manner of performance of the wedding ceremony; such factors are found to be of some significance. Mr. Sagi analyses birth intervals between an "intended component" and a "residual component" and finds that each contributes about one-half to the variability of the birth interval.

Finally there is a contribution by Dr. Warren Nelson on the present state of research in the biological control of fertility. He describes two compounds, Enovid and Norlutin, which inhibit the secretion of certain essential hormones, as representing a "real breakthrough . . . although . . . we will find much better methods in the future". His conclusion is, however, that a great deal more remains to be learnt about fundamental mechanisms before research can lead to

fully effective practical applications.

All the papers in this volume have been given some individual attention in this review. Their exceptional interest as an indicator of current views and activities justifies such a full treatment.

P. R. C.

Freedman, Ronald, Whelpton, Pascall K. and Campbell, Arthur A. *Family Planning, Sterility and Population Growth*. New York and London, 1959. McGraw-Hill. Pp. xi + 515. Price 74s.

THIS IS AN interesting and important book. It describes a survey in 1955 of the actual fertility, and the expected fertility, of American white married women aged eighteen to thirty-nine. The survey was based on a random sample of 2,713 wives living with their husbands or temporarily separated because of the husband's service in the Armed Forces, and was 91 per cent complete. The findings of the survey may be considered under the following main headings: Sterilization, Contraception, Estimated family size, Total family size, Cohort fertility, and Socio-economic factors affecting fertility.

Nine per cent of the sample were found to have had some sort of gynaecological operation which made them sterile. This proportion is surprisingly high. The interviewers were not medically trained, but many of the operations were contraceptive and not therapeutic in intent.

The use of contraceptive technique is widespread, 93 per cent of "fecund" wives have used such techniques, and another 3 per cent intend to do so in the future. Among Roman Catholics the rhythm method is the most widely used technique, a large majority of the remainder use condoms or diaphragms. Some 30 per cent of all Catholic wives and 57 per cent of those practising contraception have used methods other than the rhythm method.

There have been significant changes in recent years in the number of children that wives expect to have when they have completed their families. More are expecting three and four child families, fewer are expecting families of two or more than four children. For the most recent cohorts 1926-30, the expected number of two, three and four child families are about

* This book is reviewed below.